



THE 1997 NATIONAL CENSUS OF PINK-FOOTED GEESE AND ICELANDIC GREYLAG GEESE IN BRITAIN

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SUMMARY

The 38th consecutive census of Pink-footed Geese and Icelandic Greylag Geese in Britain took place in autumn and early winter 1997. Two discrete counts were undertaken and maxima of 235,559 Pink-footed Geese were recorded in October and 79,477 Greylag Geese in November. Both censuses were carried out under good conditions and no important sites were excluded; consequently both estimates are believed to be accurate. The Pink-footed Goose count represents an increase of just 1180 birds (0.5%) on the 1996 count, while the Greylag Goose count shows a slight decline of 99 birds (0.1%). The suggested population estimates are therefore 236,000 for Pink-footed Goose and 80,000 for Greylag Goose. Both species had a less successful breeding season in comparison to the previous year. Pink-footed Goose flocks contained 15.5% young and mean brood size was 2.0 goslings per successful pair and Greylag Goose flocks contained 13.5% young and mean brood size was 2.5 goslings per successful pair. Hunting bag statistics from Iceland showed that 37,000 Greylag Geese and 13,200 Pink-footed Geese were shot there in 1997, continuing the picture established in 1995 when the first such figures were collected. The results of the census and the implications of this level of hunting are discussed.

INTRODUCTION

The 38th consecutive census of Pink-footed Geese *Anser brachyrhynchus* and Icelandic Greylag Geese *Anser anser* in Britain took place in autumn and early winter 1997. The methods used followed those of previous censuses, with two coordinated counts being undertaken. The first was in mid-October when Pink-footed Geese are more concentrated at fewer sites just after their arrival from Iceland and the second was in mid-November, by which time the later migration of Greylag Geese has been completed. This report provides an overview of the results. More detailed data on individual sites or regions are available from WWT upon request.

METHODS

Counts were conducted by a network of volunteer counters over the weekends of 11/12 October and 8/9 November 1997. They were timed to coincide with the new moons, thus minimising the effects of night-time feeding by geese on the census totals. Most counts were of roosting geese, either undertaken at dusk when the birds are flighting in or at dawn as they depart for feeding areas. In a small number of areas where roosting waters are poorly known, inaccessible or infrequently used daytime counts of feeding birds were made. Assessments of the proportion of young in goose flocks and of brood size were made by experienced observers during the period 1 October to 16 November.

COVERAGE AND WEATHER CONDITIONS

A total of 133 sites were counted during the two censuses: 113 of these were counted in both months, three only during October and 17 in November only. This is an increase of 4% on the number of sites covered by the 1996 survey. No sites likely to have supported significant numbers (> 1%) of either population were left uncounted during the 1997 censuses.

Supplementary counts were received from a number of sites, most notably The Wash roost of Snettisham, Scolt Head and Holkham, Dinnet Lochs, South-West Lancashire and Cameron Reservoir.

Weather conditions were reported by counters as generally good and are not considered to have affected the count results. Poor light and rain may have slightly affected counts at some sites in Aberdeenshire and Moray and bright half-moons possibly affected counts at Cameron Reservoir, which were lower than average. The full moons were on 1 October and 31 October.

RESULTS

Total Numbers

Census totals are illustrated in Figure 1 and detailed regional count totals are provided in Table 1.

Pink-footed Goose

The October census total of 235,559 is an increase of just 1,180 birds (0.5%) on the previous census in October 1996 (Mitchell 1997). Some 53,000 fewer birds were counted during the November census, although this was to be expected due to the more dispersed nature of the birds at this time.

Greylag Goose

The November census total of 79,477 is a decline of just 99 birds (0.1%) on the 1996 population estimate (Mitchell 1997). However, this still represents the lowest total count since 1984 (although the overall estimate remains the same as 1996 at 80,000) and continues the decline that began in 1994.

Some counts of Greylag Geese included in these results may have been of non-Icelandic birds (i.e. from native or re-introduced populations). However, they do not amount to a significant number that would greatly affect the overall population estimate.

The 1997 National Census of Pink-footed Geese and Icelandic Greylag Geese in Britain

Table 1. The regional distribution of numbers of Pink-footed Geese and Icelandic Greylag Geese recorded in Great Britain in October and November 1997.

Region	October			November		
	Sites	Pinkfoot	Greylag	Sites	Pinkfoot	Greylag
Shetland	0	nc	nc	0	nc	nc
Orkney	6	238	3,098	8	287	13,361
Western Isles	1	0	100	2	0	160
Caithness	+	351	7,200	+	5	5,979
Sutherland	2	3	843	2	0	467
Ross & Cromarty	9	53	4,671	9	473	7,304
Inverness/Nairn	1	210	17	1	2,000	300
Badenoch & Strathspey	1	0	380	1	0	735
Moray	2	0	3,016	3	2,320	5,350
Banff & Buchan	1	33,556	240	2	18,802	392
Gordon/Aberdeen	3	12,226	6,470	3	5,440	12,336
Kincardine & Deeside	1	0	1,234	1	660	12,214
Angus/Dundee	7	19,430	5,348	8	30,646	3,684
Perth & Kinross	15	65,699	1,768	17	33,461	5,183
Stirling	3	6,990	0	4	1	7
Fife	15	1,602	409	14	7,185	1,515
Argyll & Bute	4	6	711	4	0	1,177
Glasgow area*	3	2	715	5	0	1,723
Clydesdale	1	3,300	0	3	5,250	410
Stewartry/Wigtown	8	1,110	891	9	30	1,181
Annan & Eskdale/Nithsdale**	6	26,327	625	8	9,033	2,685
East/Mid Lothian	8	17,283	453	8	9,706	851
Edinburgh/West Lothian	2	50	0	2	0	380
West Borders/Tweeddale/East Borders***	1	22,500	0	1	17,200	0
N England/Humberside	8	2,188	1,210	8	763	2,083
Cumbria**	2	0	0	2	0	0
Lancashire & Merseyside	+	18,085	0	+	24,600	0
Lincolnshire	1	130	0	1	0	0
Norfolk	3	5,220	0	2	14,320	0
Total	116	235,559	39,399	130	182,182	79,477

* Includes Bearaden & Milngavie, Clydebank, Cumbernauld & Kilsyth, Cumnock & Doon Valley, Dumbarton, East Kilbride, Eastwood, Glasgow City, Hamilton, Inverclyde, Kilmarnock & Loudoun, Kyle & Carrick, Monklands, Motherwell, Renfrew and Strathkelvin

** for convenience, counts from the Solway Firth are included in the Annandale & Eskdale/Nithsdale total even though some birds roost and feed on the Cumbrian side of the estuary

*** Includes Ettrick & Lauderdale, Roxburgh and Berwickshire

+ several feeding sites consolidated

nc no count received

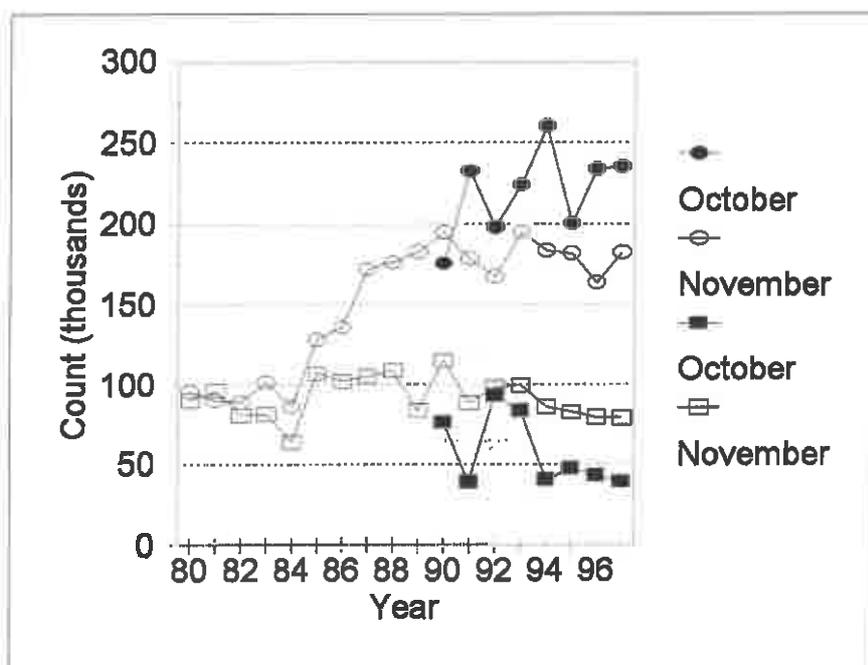


Figure 1. The number of Pink-footed Geese (circles) and Icelandic Greylag Geese (squares) recorded in Britain since 1980.

Regional Distribution

The regional distribution of geese during the two censuses is shown in Table 1 and summarised below in Table 2. Figures 2 and 3 illustrate this distribution.

Table 2. Gross regional distribution of Pink-footed Geese and Icelandic Greylag Geese in Britain during October and November 1997, expressed as a percentage of the maximum count for each species.

Area (*)	Pink-footed Goose		Greylag Goose	
	October	November	October	November
North Scotland	0.4	1.2	20.5	35.6
North-east Scotland	19.4	11.5	13.8	38.1
East Central Scotland	39.8	30.3	9.5	13.1
South-east Scotland/ North-east England	17.8	11.7	2.1	4.2
South-west Scotland/ North-west England	12.6	6.1	3.7	9.0
West England	7.7	10.4	0	0
East England	2.3	6.1	0	0
Total	100.0	77.3	49.6	100.0

- * areas defined as follows:
 North Scotland : Shetland, Orkney, Western Isles and Highland
 North-East Scotland : Grampian (Aberdeenshire)
 East Central Scotland : Tayside (Perth & Kinross), Central (Stirling) and Fife
 South-East Scotland/North-East England : Lothian, Borders, Northumberland and Humberside
 South-West Scotland/North-West England : Strathclyde, Dumfries & Galloway and Cumbria
 West England : Lancashire and Merseyside
 East England : Lincolnshire and Norfolk

Pink-footed Goose

Regional distribution of Pinkfeet was very similar in 1997 to 1996. Once again, East Central Scotland supported the greatest proportion of the population during both counts. In fact it held an increased proportion of the total in comparison to 1996 (10% more in each month) and over twice the number of the second most important region, North-east Scotland. Approximately one third of the population was found there in November, compared to one fifth in 1996.

With the exception of North Scotland, all other Scottish/northern English regions held between 12% and 20% of the total during October, declining to 6-12% by November. North Scotland, despite supporting less than 2% of the population, was again the only Scottish region to show an increase in numbers from October to November.

By November the importance of all other Scottish regions had decreased slightly as geese moved south into Lancashire and Norfolk.

The arrival in Lancashire during October 1997 was slower than in recent years. The region held fewer birds than it had done during the past four years (just 48% of the October 1996 census). However, by November numbers had recovered to typical levels, when usually there is a decline as birds move east into Norfolk.

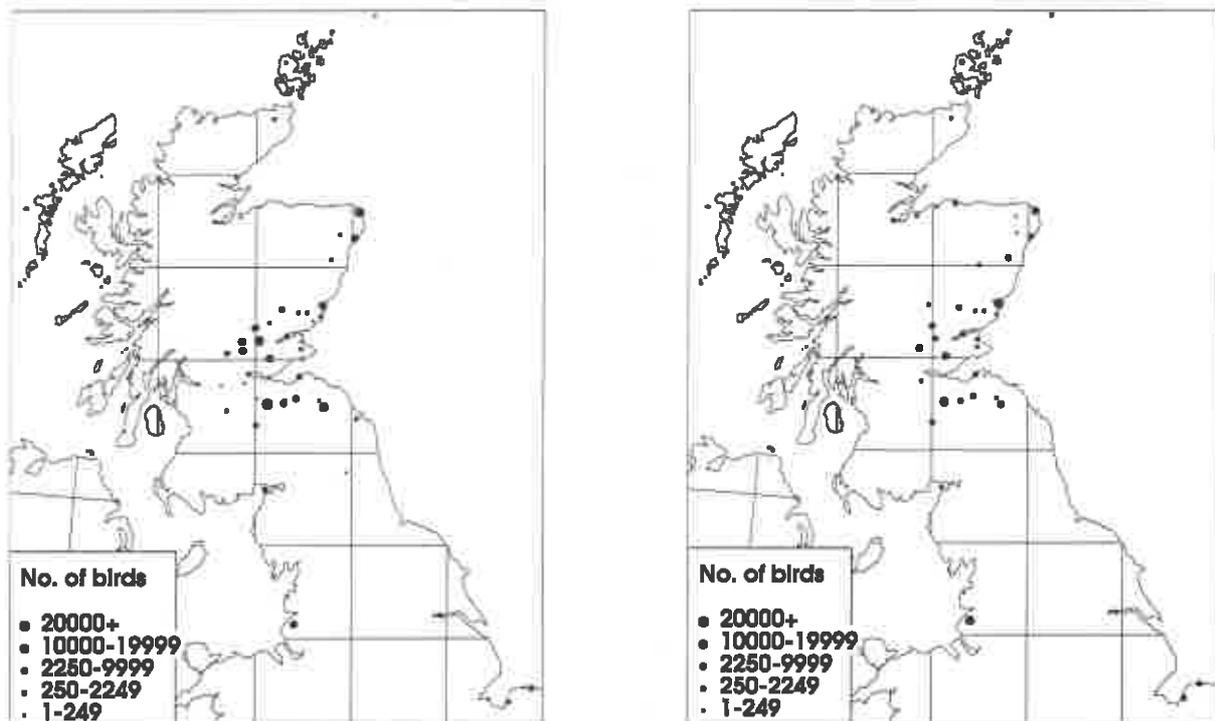


Figure 2. The distribution of Pink-footed Geese in October (left) and November (right) 1997.

Greylag Goose

As with the regional distribution of Pinkfeet, there were no significant differences in this pattern between the 1997 and 1996 censuses. In November, North-east Scotland again supported the most Greylags, although the importance of North Scotland increased this year and it actually held more geese than the former region during October. There was a slight increase noted in South-west Scotland and a slight corresponding decrease in South-east Scotland. Numbers and proportions in East Central Scotland remained similar to previous censuses.

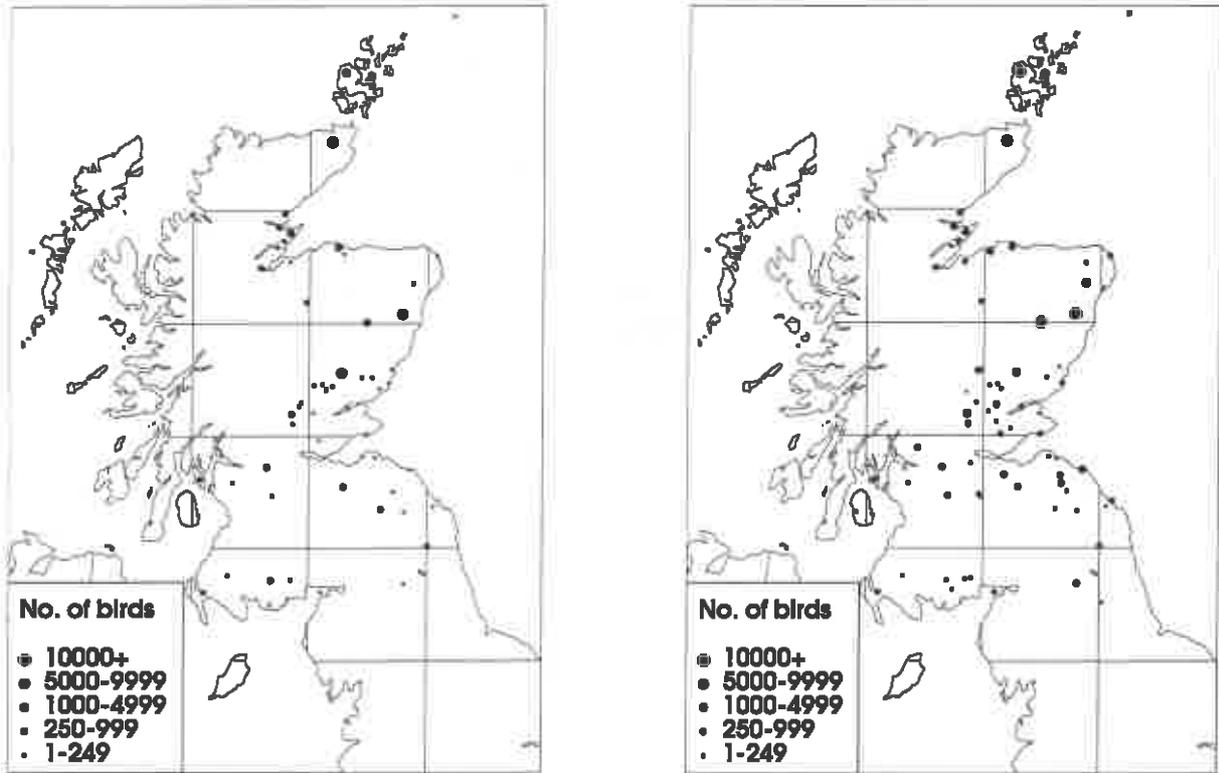


Figure 3. The distribution of Icelandic Greylag Geese in October (left) and November (right) 1997.

Principal Concentrations

All sites that supported more than 1% of the Pink-footed Goose or Greylag Goose population census total are shown in Table 3.

Pink-footed Goose

During October Pinkfeet were reported from a total of 52 sites, of which 44 held more than 10 birds. Nineteen sites held more than 1% of the census total (Table 3) and eight sites held more than 10,000 birds. Over 36% of the October census total was recorded from three of these : Loch of Strathbeg (33,556), Dupplin Lochs (29,850) and West Water Reservoir (22,500). Similarly, during November 21 sites held more than 1% of the census total and more than 10,000 birds were found at five sites. Three of these supported 39% of the total count : Montrose Basin (29,000), South-west Lancashire (24,600) and Loch of Strathbeg (18,800). In all, Pink-footed Geese were recorded at 64 locations during either the October or November censuses, five less than in 1996.

Most sites held fewer than their mean five year peak count, with particularly low counts from Lancashire, the Solway Estuary and Aberlady Bay. Notable exceptions were Hule Moss, Fala Flow and the less significant sites Loch Mahaick Doune, Gladhouse Reservoir, Loch Tullybalton, Drummond Pond and Loch Mullion. The penultimate site, however, supported just 60% of its five year mean peak count for Greylag Goose.

Other counts away from the census dates revealed that the low numbers in Lancashire during October were maintained throughout the winter, although the maxima of 28,960 on 7 December was the highest December count for six years (Forshaw 1998). Norfolk continues to support increasing numbers of Pinkfeet. The Snettisham/Scolt/Holkham roost held 76,170 birds on 1 December and the area supported more than 60,000 Pinkfeet from late November through to early January. After a fall in numbers (to 26,660) in mid-January numbers were greater than 35,000 until early February, when the departure of birds became extremely rapid so that just 4,000 remained by mid-February.

Away from The Wash, Pinkfeet are also wintering in increasing numbers in east Norfolk, with maxima of c.10,000 at Heigham Holmes and 5,500 at Breydon Water in late February 1998 (P. Allard *in litt.*). Movements to this area tend to be during late winter and it can therefore be assumed that these birds are the same individuals that were wintering around The Wash earlier in the season. Reports from feeding areas of Wash roosting birds suggest that in 1997/98 reduced numbers were present during late winter (E. Cross *in litt.*). This may account for the thousands recorded in east Norfolk during that time.

Greylag Goose

In October early arrivals had concentrated at similar locations with 7,200 at sites in Caithness, 6,420 at Loch of Skene, 5,230 at Loch of Lintrathen, 3,781 at Loch Eye, 3,000 at Loch Spynie, 2,388 in Orkney and 1,234 at Dinnet Lochs. These sites account for 37% of the November census total. In all, 62 sites held Greylag Geese during the October census and overall birds were recorded at 91 sites.

Over 46% of the November census total was recorded at three sites : Orkney (13,361), Dinnet Lochs (12,214) and Loch of Skene (11,200). A further four sites held 3,000 or more birds and 15 held more than 1% of the census total. Greylags were reported from a total of 82 sites during the November census, of which 78 held more than 10 birds.

As with Pinkfeet, most sites typically held fewer birds than their mean five year peak count. The major exception to this was Orkney, which supported 223% of its mean peak count. It appears that the increasing numbers of birds there are present at all times of the winter as movements of individuals ringed at Loch Eye in the early autumn suggest that increasing numbers are moving north after their arrival into southern Highland (B. Swann pers. comm.). Other sites that held above average counts were Loch of Lintrathen, Dowlaw Dam, Dornoch Firth, the Upper Tay and Endrick Mouth (Loch Lomond).

Additional counts at Dinnet Lochs revealed an autumn maxima 24,346 on 27 October; counts greater than 20,000 were recorded on five days between 26 and 31 October.

Table 3. Principal Pink-footed Goose and Icelandic Greylag Goose resorts in autumn 1997. Columns show all counts from sites holding $\geq 1\%$ of the 1997 population estimate for each species (A), the site count as a percentage of the census total (B), the site count as a percentage of five year peak mean counts [®] and five year peak mean counts (D) (these are calculated using all monthly counts [WeBS data] and additional counts, thus may appear larger than counts recorded in the autumn).

PINK-FOOTED GOOSE

October census total	235,559			
	A	B	C	D
Loch of Strathbeg	33,556	14.2	80	41,654
Dupplin Lochs	29,850	12.7	75	39,900
West Water Reservoir	22,500	9.5	76	29,700
Huile Moss	19,675	8.3	135	14,536
South-west Lancashire	18,085	7.7	56	32,318
Montrose Basin	18,000	7.6	61	29,572
Loch Leven	14,740	6.3	78	18,829
Meikle Loch, Slains	12,200	5.2	66	18,408
Carsebreck and Rhynd Lochs	9,600	4.1	87	11,024
Fala Flow	7,500	3.2	169	4,437
Solway Estuary	6,482	2.7	39	16,462
Loch Mahaick Doune	6,465	2.7	1188	544
The Wash/Holkham Bay	5,220	2.2	20	25,392
Gladhouse Reservoir	5,000	2.1	133	3,768
Loch Tullybelton	4,980	2.1	140	3,551
Aberlady Bay	4,780	2.0	44	10,944
Drummond Pond	3,300	1.4	111	2,982
Upper Cowgill Reservoir	3,300	1.4	62	5,308
Loch Mullion	3,000	1.3	279	1,072

GREYLAG GOOSE

November census total	79,477			
	A	B	C	D
Orkney (all sites)	13,361	16.8	223	5,993
Dinnet Lochs	12,214	15.4	42	28,930
Loch of Skene	11,200	14.1	91	12,355
Caithness	5,979	7.5	84	7,110
Loch Eye	4,620	5.8	41	11,276
Loch of Lintrathen	3,140	3.9	126	2,500
Loch Spynie	3,000	3.8	49	6,056
Findhorn Bay	2,350	2.9	75	3,123
Drummond Pond	1,834	2.3	60	3,036
Dowlaw Dam	1,600	2.0	1151	139
Dornoch Firth	1,558	2.0	107	1,459
Sites in Upper Tay	1,333	1.7	209	637
Haddo Country Park	1,110	1.4	24	4,592
Lindisfarne NNR	900	1.1	64	1,408
Endrick Mouth	800	1.0	238	336

Breeding Success

A total of 17,295 Pink-footed Geese and 5,024 Greylag Geese were aged at various localities throughout Scotland and north-west England between 1 October and 16 November. In addition, brood sizes were collected for 172 broods of Pinkfeet and 35 broods of Greylag Goose. Both breeding success and mean brood size were lower than in autumn 1996 for both species (Table 4 and Figures 4 and 5).

Table 4. *The proportion of young and mean brood size of Pink-footed and Greylag Goose flocks in autumn 1997. (Regions defined in Table 2).*

	Region	Total aged	% Young	No. of broods	Mean brood size
Pink-footed Goose	North Scotland	255	9.8	4	1.0
	North-East Scotland	8,986	16.5	97	1.9
	East Central Scotland	4,561	10.4	1	1.0
	South-East Scotland	1,119	12.5	10	2.0
	South-West Scotland	1,674	28.4	17	2.4
	West England	700	12.3	43	2.0
	Total	17,295	15.5	172	2.0
Greylag Goose	North Scotland	4,048	13.1	7	2.7
	North-East Scotland	363	11.0	3	2.7
	East Central Scotland	454	10.4	-	-
	South-West Scotland	159	36.5	25	2.44
	Total	5,024	13.5	35	2.5

Pink-footed Goose flocks were estimated to contain 15.5% young and mean brood size was determined to be 2.0 goslings per pair. However, the inclusion of additional age ($n=2,650$) and brood size ($n=119$) assessments that were undertaken prior to the assessment period change the estimates to 16.7% young and 2.3 goslings per pair.

In comparison, Greylag Goose flocks held slightly less young, approximately 13.5%, although mean brood size was slightly greater at 2.5 goslings per pair.

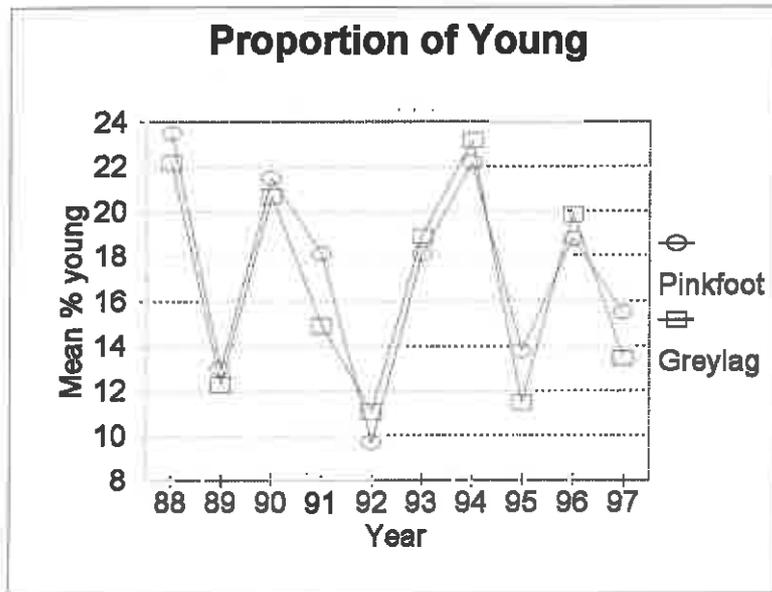


Figure 4. The proportion of young Pink-footed Geese and Icelandic Greylag Geese in Britain, 1988-1997.

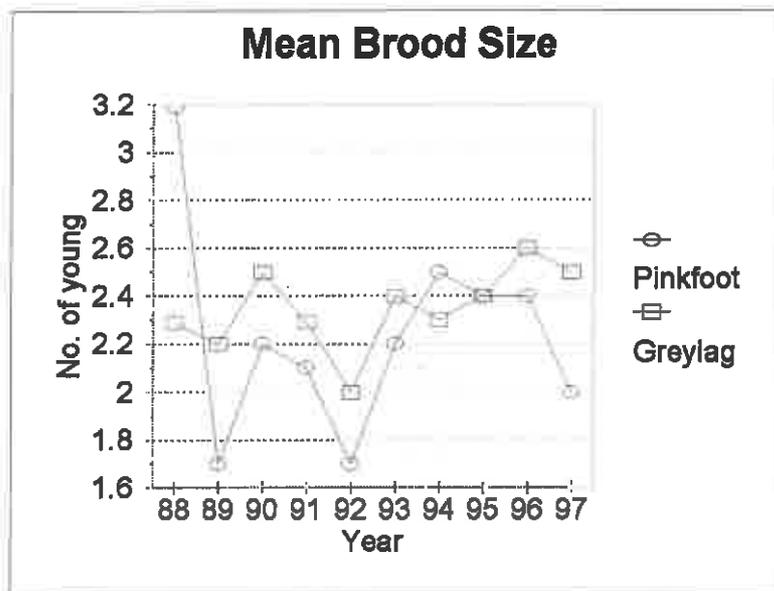


Figure 5. The mean brood size of successful pairs of Pink-footed Geese and Icelandic Greylag Geese in Britain, 1988-1997.

Regional inconsistencies in the number of geese sampled is still a problem, with few data for Pink-footed Geese received from Lancashire and none from Norfolk. Greylag Geese likewise are poorly surveyed in western Scotland and obtaining brood size data was a problem during 1997.

DISCUSSION

The 1997 national censuses of Pink-footed Geese and Icelandic Greylag Geese were largely made under excellent weather conditions and good coverage was also achieved. Therefore, the census results are considered to be an accurate reflection of the numbers of these two wintering populations found in Britain during 1997.

Counts were not received for Lake of Menteith, Loch Rusky and Long Loch, in East Central Scotland. The last five counts for Lake of Menteith (1992-1996) give a mean of 1,428 Pinkfeet and both of the other two sites hold geese irregularly. Flanders Moss, which can hold significant numbers of Pinkfeet, was not counted in October, the most important month. However, nearby Loch Mahaick Doune supported its greatest number of Pinkfeet for many years and it is possible that the Forth Valley birds were roosting there (M. V. Bell *in litt.*).

All other sites that were not counted during the October census are areas where Greylag Geese roost and likewise, the three sites not counted in November are locations where there are no Greylag Geese. Therefore, the population estimates for both species are not considered to have been greatly affected by these omissions.

There are, however, a number of inaccessible upland sites north of Perth that are currently not counted and are considered likely to hold additional Greylag Geese (M. V. Bell pers. comm.). Evidence supporting this came in 1997 from a flock of c.2,000 birds that were recorded 3km from Loch Clunie just a few hours after the November census of that site. During the census Loch Clunie held just 150 Greylag Geese and at nearby Marlee Loch and Loch of the Lowes, only another 150 and 157 Greylags respectively were recorded. It is considered likely that these birds were additional individuals not counted elsewhere and are probably roosting on these upland lochs, most likely Loch Benachally and Loch Ordie. A count of 2,000 Greylag Geese would make either of these sites internationally important for the species and would have ranked them ninth on the list of principal concentrations for the 1997 census. It is hoped that these sites will be counted during the 1998 census.

There are two other areas where the changing habits of the birds is causing some to remain uncounted. These areas are late winter refuges that previously contained small numbers of birds during the census period but where recent changes in arrival patterns have meant that they may now support significant numbers of geese during the census period.

Parts of eastern Norfolk, around Heigham Holmes and Breydon Water are now supporting increasing numbers of Pinkfeet. As previously mentioned, the vast majority arrive during the latter half of the winter, but increasing numbers around The Wash mean that some are now present during late October. Counts are anticipated for this area during the 1998 census so it is hoped that some assessment of its importance during early autumn can be made.

In general the movement of Pinkfeet into north Norfolk is steadily changing towards an earlier arrival of larger numbers, despite the stability of the overall population. In 1995/96 the peak count of birds roosting at Snettisham, Scolt Head and Holkham was 54,760 on 12 January. In 1996/97 it was 55,500 on 20 December and in 1997/98 there were a maxima of 76,170 present on 1 December. The October 1997 census total of 5,220 is also the highest count contributed to the national census from these sites.

Greylag Geese are being found in increasing numbers in Ireland. Currently, four sites support the majority of the birds; namely, Lough Swilly (Co. Donegal), Stabbanan/Braganstown (Co. Louth), Lower River Suir (Co. Waterford) and North Wicklow coastal marshes (Co. Wicklow). In November

1997 these sites supported a total of 2,500 Greylag Geese. The origins of these birds are undoubtedly mixed, with the local feral population being joined by Icelandic birds during the winter. Ringing recoveries suggest that many, if not all, of these birds arrive in Ireland via Scotland and not direct from Iceland.

At Lough Swilly at least, where numbers typically peak at more than 2,000, there are late summer counts of feral birds in the region of 500-600 individuals (K. Colhoun *in litt.*), suggesting that c.1,500 Icelandic Greylags may be present in the area. Although many of these birds move to Ireland after the November population census, some 1,050 Greylag Geese were present at Lough Swilly during November 1997, suggesting that up to c.450 Icelandic birds may have been present at that time. If this proportion is extrapolated to include all Greylag Geese in Ireland it may be expected that the region contains c.1,050 Icelandic Greylag Geese in November (c.1.3% of the 1997 November census total).

The 1997 census results reveal stable populations of both species compared to 1996, with fluctuations of less than 1%. A more detailed examination of long-term trends, using five year mean counts (Figure 5), shows a continuing increase of Pinkfoot numbers after a short period of stability between 1993-1994. However, since 1991 there have been a number of fluctuations in the census totals (notably c.200,000 in 1992, c.260,000 in 1994 and c.200,000 in 1995; see Figure 1) that cause uncertainty about whether the population is currently stable or increasing.

Figure 5 also indicates that the Greylag Goose population trend has now been in steady decline since 1988 (and in real terms since 1994; see Figure 1). This decline has now been longer and more pronounced than any other since censusing began and is now a cause of serious concern.

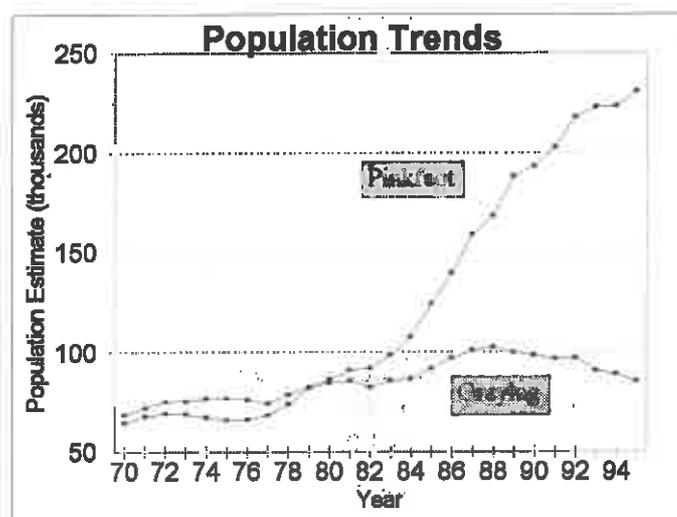


Figure 5. Population trends of Pink-footed Goose and Icelandic Greylag Goose since 1970, based on five year running means (ie mean for 1995 is from population estimates for 1993-1997).

A major factor in the long-term security of this population is likely to be the increasing levels of hunting of Greylag Geese in Iceland. In 1995, the Icelandic Institute of Natural History (IINH) began to collect obligatory bag statistics from hunters. In 1997, an estimated 37,000 Greylag Geese and 13,200 Pink-footed Geese were shot, similar to estimates in the previous two years (Figure 6). The proportion of young birds in these hunting bags was estimated as 38% and 29% respectively, giving approximately 14,060 juvenile Greylags and 3,828 juvenile Pinkfeet shot in Iceland prior to the autumn 1997 census.

Figure 6 also shows that the number of geese shot in Iceland has increased annually since figures began. Currently, no additional protection has been afforded to the Greylag Goose, although education programmes have been initiated by IINH with the Icelandic hunters to discourage the hunting of Greylag Geese on a voluntary basis. Enforcement may become necessary if numbers hunted do not decrease (A. Sigfússon *in litt.*).

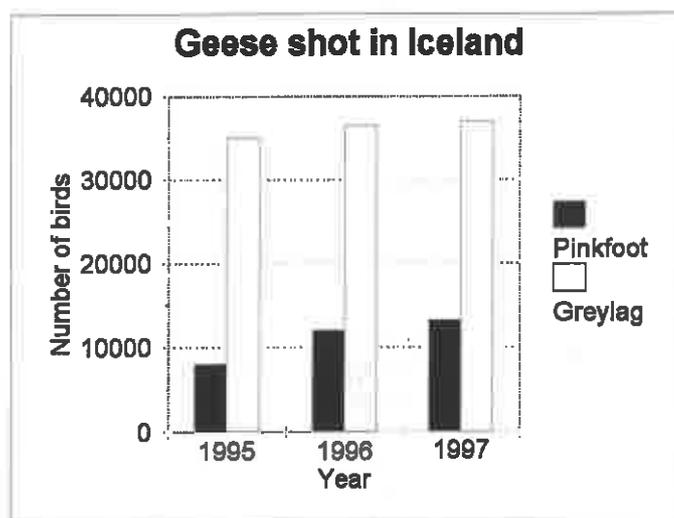


Figure 6. Numbers of Pink-footed Geese and Greylag Geese shot annually in Iceland (IINH data).

In addition, unknown numbers of geese are shot in Britain each winter and unrecorded levels of egg collecting occur in Iceland during the breeding season. However, it is likely that the primary cause for decline in the Greylag population is the unsustainable levels of autumn hunting in Iceland. If protection and monitoring of this population is to continue then the number of birds shot needs to be reduced and the collection of data on the above unquantified factors should be encouraged, particularly the number of birds shot in Britain each winter.

COLOUR-MARKED GEESE

Pink-footed Geese and Icelandic Greylag Geese continue to be marked both in Iceland and Britain with plastic tarsus rings and neck collars. The principle areas in Britain where Pinkfeet have been marked are WWT Martin Mere (Lancashire), Loch Leven NNR (Perth & Kinross) and the north Solway coast (Dumfries & Galloway). Greylag Geese are marked predominantly at Loch Eye (Highland) and in north-east Iceland. Goose counters are asked to contribute their sightings to the addresses below. The colours and ring/collar codes to look out for are as follows:

Pinkfeet white or orange rings with three letters and grey neck collars with two or three characters

Greylags white or orange rings with two characters, light green rings with two or three letters and grey neck collars with two or three characters

Please send sightings of colour-marked Pink-footed Geese (and any other wildfowl) to Colour Ring Sightings at WWT Slimbridge and sightings of colour-marked Greylag Geese to Bob Swann, 14 St Vincents Road, Tain, Ross-shire, IV19 1JR.

AUTUMN COUNTS 1998

The dates for the 1998 annual National Census are:

17/18 October and 21/22 November

If you have not received your count forms for this autumn then please contact Slimbridge to obtain some.

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REFERENCES

Forshaw, W.D. (1998) *Report on Wild Geese and Swans in Lancashire 1997/98*. Unpublished report.

Mitchell, C. (1997) *The 1996 National Census of Pink-footed and Greylag Geese in Britain*. Report to JNCC. WWT, Slimbridge. 13pp.

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